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an ink supply hold formed on a wall of said housing, said engaging recess being engageable with a projecting member of the printer when the ink cartridge is correctly mounted on the printer, wherein:

said engaging recess is engageable with a lifter formed on a lever of a cartridge holder of the ink jet printer, and

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said engaging recess comprising a first section for receiving the lifter of the lever and a second section for receiving the projecting member of the printer, and said first action and second section being formed continuously.

### REMARKS

This amendment is submitted in response to the outstanding Office Action dated March 20, 2001, wherein the Examiner withdrew claims 1-14 and 24-35 from consideration and rejected claims 15-23, 36-73 and 83-90, all claims previously pending. Claims 1, 8, 11, 15, 24, 36, 57, 58, 62 and 87 are independent, as is newly-presented claim 91. Support for this claim may be found, by way of example, in figure 13 and in the specification at pages 15-16.

### Claim Objections

The drawings were objected to by the Examiner under 37 C.F.R. § 1.84(p)(5) for allegedly failing to include reference label "208" mentioned at page 11, line 12, of the specification.

The specification has been revised to eliminate the reference label "208", thus rendering the drawings and specification consistent.

Accordingly, favorable reconsideration and withdrawal of this objection are respectfully requested.

### **Claim Objections**

Claims 48-56 and 58 were objected to because of alleged misnumberings and misspellings. Applicants have amended claims 48-56 in order to correct misnumbering. Applicants have further amended claim 58 to correct the typographical error, changing "engagable" to --engageable--.

### **The Rejection Under 35 U.S.C. § 112, ¶ 1**

The Examiner has rejected independent claims 15 and 58 and claims 16-23 and 59-61 depending respectively therefrom under 35 U.S.C. § 112, ¶ 1, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to practice the claimed invention. The Examiner said it was not clear how the pressure within the space of the recess 60 can be lower than the atmospheric pressure when the specification describes the recess 60 as only being partly sealed and communicating with the air, as described at page 12, lines 7-9 of the specification. Applicants respectfully traverse this rejection.

Applicants believe that the question posed by the Examiner is answered keeping in mind that there is a difference between the state in which the product is used and the manufactured state of the product. The relationship between these states is clear from the text referenced by the Examiner.

During use, as shown in Fig. 7a, the recess portion 60 is communicated via a portion 60a with air, that is, exposed to an exterior of the ink cartridge. Therefore, if the ink cartridge is packed with a flexible package 180 as shown in Fig. 31, and the pressure inside the

flexible package 180 is decreased to be lower than the atmospheric pressure, then the recess portion 60 is also decreased in pressure to be lower than the atmospheric pressure. It is clear from the specification at page 12, lines 7-9 that when the package is manufactured the seal is complete and covers the recess. As the consumer begins to peel the seal away in preparation for use, the recess becomes only partly sealed and then unsealed when the tape is completely removed, with attendant changes in pressure such as are described at page 12, lines 10-18.

For all the foregoing reasons favorable reconsideration and withdrawal of this rejection are respectfully requested.

**The Rejection Under  
35 U.S.C. § 112, ¶ 2**

Claims 37, 39, 55, 56 and 65 have been rejected under 35 U.S.C. §112, ¶ 2, as being indefinite for failing to particularly point out and distinctly claim the subject matter of Applicants' invention.

Applicants have amended independent claim 57 to add reference to a "cartridge holder," thus overcoming the corresponding rejection of claim 55.

Claims 37 and 55 have also been rejected under 35 U.S.C. § 112 because it was unclear whether the "projection" is the same as the "member" of claims 36 and 57 respectively. The claims have been amended to read "projecting member" rather than "member" in order to more particularly describe the claimed invention. Additionally, "engaging hole means" has been amended to "engaging recess" for clarification purposes.

With respect to claims 36 and 65, it was said that these claims are unclear as to whether the projection can extend from a lever and engage the engaging hole means adjacent to the ink supply port. Applicants respectfully wish to remind the Examiner that claims 36 and 35

are separate from claims 36 and 57. In claim 36 the projecting member refers to the projection formed on the bottom portion of the carriage which engages with the engaging recess located on the bottom portion of the ink jet cartridge. Claim 57 claims a projection and a recess. In this case, the projection could refer to either the projection located on the bottom of the carriage or the projection located on the lever of the printer. The engaging recess claimed by 57 could refer to either the engaging recess located on the bottom of the ink cartridge or the recess located on the lid of the cartridge. Claim 55 describes that the projection on the lever engages with the recess and is clearly referring to the recess on the lid. See specification on page 14, lines 4-18 and Figs. 9(a) and 9(b). Both sets of projections and recess serve the same function wherein the projecting member engages with the engaging recess of the cartridge while the projecting member prevents engagement with the engaging recess if the cartridge is inserted improperly.

For all the foregoing reasons, favorable reconsideration and withdrawal of these rejections are respectfully requested.

**The Rejections Under  
35 U.S.C. § 102**

Claims 15, 16 and 21-23 have been rejected under 35 U.S.C. § 102(a) as being anticipated by British Patent Publication No. 2315461 to Shinada, et al. ("GB2315461"). The Examiner stated that GB2315461 discloses all the features of the claimed invention. Applicants respectfully request this rejection be withdrawn. According to the Examiner, Shinada teaches a lid with a seal, however the air communication hole of Shinada is formed in the lid for communicating with the interior of the ink cartridge. This, however, is entirely different from the present invention; amended claim 15 provides that the recess is isolated from the interior of

the ink chamber. Therefore, one of ordinary skill in the art would not find Applicants' invention to be anticipated by Shinada '461.

Claims 36, 40, 41, 43, 46, 48, 49, 53, 55, 57, 62, 66, 67, 69, 72, 84, 86, 87, 89 and 90 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,019,465 to Shinada, et. al. ("U.S. 6,019,465"). The Examiner states that U.S. 6,019,465 discloses all the features of the claimed invention. Applicants respectfully traverse this rejection.

Claim 36 has been amended to more particularly point out that it is directed to a pair of engaging recesses formed in the wall of the housing adjacent to and apart from the ink supply port and a mating projecting member of the printer engageable with the engaging recess. Claim 57 is directed to a pair of engaging recesses form on said lid and covered by a film and a mating projecting member of the printer engageable with the engaging recess. The engaging recesses are separate and apart from the ink supply port. In the event that the user attempts to reverse the orientation of the ink cartridge, the projecting member and the engaging recess can not contact each other and align the ink supply port with the ink supply needle. Only when the ink cartridge is inserted in the proper orientation can the engaging recess function to accommodate the projecting member. If a large offset occurs when the ink cartridge is inserted with the proper orientation, then the engaging recess can be contacted with and guided by the projecting member to achieve alignment.

In contrast to the claimed invention, Shinada '465 the recess and the projection cannot avoid the above described reverse insertion nor the offset. In Shinada, the recess and the projection can permit the insertion of the ink supply needle into the ink supply port even if the above described offset occurs. In Applicants' invention, when the ink cartridge is properly mounted to the printer, the engaging recess can be contacted with and guided by the projecting

member of the printer to align the ink supply port with the ink supply needle prior to insertion of the ink needle into the ink supply port. See specification at page 14, line 10-14 and Fig. 10(b).

In Shinada, column 3, lines 2-45, the description of Fig. 2, which is relied upon by the Examiner, clearly teaches that the projection and engaging means are the ink supply port and the ink supply needle. Applicants' invention describes a projecting member and engaging recess separate and apart from the ink supply port and ink supply needle. Therefore, one of ordinary skill would not find the engaging recesses described on the bottom portion of the cartridge of Shinada anticipatory of the separate engaging recess and projecting member described in Applicants' invention.

**The Rejections Under  
35 U.S.C. § 103**

The Examiner has rejected claims 17-20 under 35 U.S.C. § 103 as being unpatentable over the combination of GB2315461 and US6,019,465. The Examiner admitted that GB2315461 failed to suggest all of the features of the claimed invention, such as the recess being disposed under the removable portion of the seal member, the cartridge being mounting in the carriage and the recess disposed on/or part of the lid which is engagable with a member of the carriage when the ink cartridge is mounted on the carriage, and a mounting lever mounted on the carriage wherein the member of the carriage comprises a rod projecting from the mounting lever.

The Examiner concedes that GB2315461 does not disclose the recess being disposed under the removable portion of the seal member, but he considers this to be an obvious modification.

The Examiner has also rejected claims 37-39, 42, 44, 45, 47, 50-52, 54, 56, 58-61, 63-65, 68, 70, 71, 73, 83, 85 and 88 under 35 U.S.C. § 103 as being unpatentable over the hypothetical combination of GB2315461 and U.S. 6,019,465. The Examiner stated that US6019465 discloses all of the features of the claimed invention except for a seal member affixed to an outer-surface of the lid, a portion of the seal member being removable, the engaging recess having the capacity sufficient to receive gas escaped from the ink cartridge, and the pressure within the space be lower than the atmosphere pressure when the ink cartridge is packed such that the purpose of packaging and ventilating the cartridge may be met. The Examiner states, however, that GB2315461 discloses these features.

The Examiner concedes that Shinada '465 does not disclose the height of the projection as claimed, the particular number of engaging holes, the claimed positions of the engaging holes, and the claimed shape of the engaging hole means.

Applicants' invention as described above is directed to preventing improper insertion of an ink cartridge into a printer. This favorable result can be accomplished through the claimed projecting member and engaging recess. The projecting member when located on the bottom of the printer carriage engages with a recess located on the bottom of the ink cartridge. In the event that the user attempts to reverse the orientation of the ink cartridge, the projecting member and the engaging recess can not contact each other and align the ink supply port with the ink supply needle. Only when the ink cartridge is inserted in the proper orientation can the engaging recess function to accommodate the projecting member. This is also true of the projecting member located on the lever and the engaging recess located on the lid. If the user attempts to reverse the orientation of the cartridge, the projecting member will not engage with the recess and the lever will not lock the lever in place. (See specification page 14, lines 4-18

and Figs. 9(a) and 9(b)). Therefore, Applicants invention provides a superior result compared to that described in the references cited. Additionally, the Examiner has provided no suggestion or motivation to combine in the references cited. Therefore, one of ordinary skill in the art would not find Applicants' invention obvious in view of Shinada '465 and Shinada 461 either alone or in combination.

### **Miscellaneous**

Along with the Office Action the Examiner sent to Applicants' undersigned attorney a number of initialed Information Disclosure Citation form, along with one citation form in which the cited references were crossed out as being allegedly duplicative of information on other citation forms. Applicants note, however, that Japanese Laid-Open Patent Application No. 11-132747 was crossed out in error; a previous Office Action listed Japanese Laid-Open Appln. No. 11-132474, which, it will be appreciated, is a different reference, and the '747 reference was not cited elsewhere.

For the Examiner's convenience, copies of the English abstracts of both these Japanese references are included. It will be noted that the reference for JP 11-132474 involves a heating too for grilling fish; it appears that the citation of this reference may have been caused by an inadvertent typographical error.

The Examiner is therefore respectfully requested to confirm that JP 11-132747 has been considered, by initialing and returning to the undersigned a copy of the accompanying Information Disclosure Citation form.



## CONCLUSION

Applicants have made a diligent effort to place this application in condition for allowance and submit that claims 15-23, 36-73 and 83-90 are in condition for allowance. If for any reason, however, the Examiner should deem that this application is not in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below to resolve any outstanding issues prior to issuing a further Office Action.

Early and favorable action is respectfully requested.

Respectfully submitted,

*David L. Schaeffer*

*Reg. No. 32,716*

*for*

Lawrence Rosenthal  
Registration No. 24,377  
Attorney for Applicants  
Stroock & Stroock & Lavan LLP  
180 Maiden Lane  
New York, New York 10038  
(212) 806-5400

## VERSION WITH MARKINGS TO SHOW CHANGES MADE

### IN THE SPECIFICATION

#### At Page 11, lines 12-15:

A black ink cartridge [208] includes a container 52 on one side of which an ink supply port 5, where the ink supply needle 10 of the printing apparatus is inserted, is formed. The opposite open face of container 52 is sealed by a lid 51 as shown in Figs. 7(a)-(c). A porous body impregnated with ink is housed inside the black ink cartridge [208].

#### At Page 15, line 21 - Page 16, line 11:

As shown in FIG. 13, in a second embodiment, the recessed part 65a for fitting to the projection 19 is integrated with the recessed part 65 for fitting to the projection 20 (provided as a lifter 176) to install or detach the cartridge K in or from the carriage or the cartridge holder 6 by a mechanism in which [a] the lifter 176 connects to the lever 105 via an operating rod 175 as shown in Fig. 13. In the present embodiment, the lifter 176 is guided up and down along a guide groove 177 by the operation of the lever 105, so that the ink cartridge is attached to or detached from the cartridge holder 106. In the operation, the projection 19 engages with and disengages from one recessed part 65a of the ink cartridge so that the ink cartridge can be accurately positioned as mentioned above. However, in the case of an ink cartridge mounted or detached by a lever not provided with the lifter 176, even if recessed parts 64 and 65 are formed as shown in Figs. 14(a), 14(b), so that a convex portion 67, in which the ink supply port 50 is formed, is located between the recessed parts 64, 65 and a recessed part 73 is independently formed in a position opposite to the convex portion 20 of the cartridge holder, the similar action is produced.

## **IN THE CLAIMS**

15.(Amended) An ink cartridge for an ink jet printer, comprising:

a housing having walls and an opening, said housing containing ink, a top wall of said housing being constituted by a lid covering said opening of said housing;

at least one ink chamber defined by said housing and said lid;

an ink supply port formed on one of the walls of said housing;

at least one recess forming a space in an outer surface of said lid when the ink cartridge is packed under a vacuum condition, the pressure within said space being lower than the atmospheric pressure when the ink cartridge is packed, wherein said recess is isolated from an interior of the ink chamber and exposed to an exterior of the ink chamber.

16.(Amended) The ink cartridge of claim 15, further comprising a seal member, wherein said [wall has an outer surface, the] recess [being] is partially covered by said seal member adhered onto the outer surface of the wall of said housing.

20.(Amended) The ink cartridge of claim 19, [further comprising] wherein the ink jet printer further includes a mounting lever mounted on the carriage wherein the member of the carriage comprises a [rod] projecting member projecting from the mounting lever.

36.(Amended) An ink cartridge for an ink jet printer, comprising:

a housing containing ink;

an ink supply port formed on a wall of said housing; and

at least one engaging recess [hole means] formed in the wall of said housing adjacent to and apart from said ink supply port, said engaging recess [hole means] being engageable with a projecting member of the printer when the ink cartridge is mounted on the printer, wherein the engaging recess and the projecting member of the printer align the ink supply port with an ink supply needle of the printer prior to the insertion of the ink needle into the ink supply port.

37.(Amended) The ink cartridge of claim 36, wherein [said engaging hole means engages with a projection formed on the ink jet printer], the height of the projecting member [projection] [being] is greater than that of the ink supply needle of the ink jet printer.

38.(Amended) The ink cartridge of claim 37, further comprising an abutment member which abuts against the [projection] projecting member of the ink jet printer when the ink cartridge is mounted [in the] improperly.

39.(Amended) The ink cartridge of claim [37] 38, wherein [the projection extends from a lever of a cartridge holder of the ink jet printer] said abutment member includes a part of said wall of said housing where the engaging recess is not formed.

40.(Amended) The ink cartridge of claim 36, wherein said ink supply port and said engaging recess [hole means] are formed on a bottom of said housing.

41.(Amended) The ink cartridge of claim [40] 36, wherein said ink supply port protrudes from [the bottom] said wall of said housing.

42.(Amended) The ink cartridge of claim 36, wherein said engaging recess [hole means] comprises an odd number of engaging recesses [holes].

43.(Amended) The ink cartridge of claim 36, wherein said engaging recess [hole means]comprises an even number of engaging recesses [holes].

44.(Amended) The ink cartridge of claim 42, wherein the position of said engaging recesses [holes] are asymmetrical with respect to a center transversal line of said ink supply port.

45.(Amended) The ink cartridge of claim 42, wherein at least two of the engaging recesses [holes] are disposed along a line.

46.(Amended) The ink cartridge of claim 43, wherein at least two of the engaging recesses [holes] are disposed along a line.

47.(Amended) The ink cartridge of claim 36, wherein said engaging recess [hole means] is rectangular in cross section.

48 [1]. (Amended) The ink cartridge of claim 57, wherein a[ second engaging recess] recessed port is formed on an outer surface of said lid, and said recessed port communicates with said air communication port and is isolated from said engaging recess.

49 [2]. (Amended) The ink cartridge of claim 48, further comprising a porous member fitted in an ink chamber defined by said housing and said lid, said porous member being impregnated with ink and engaging with said ink supply port.

50 [3]. (Amended) The ink cartridge of claim 57, [further comprising] wherein said film includes a seal member affixed to an outer surface of said lid, a portion of said seal member being removable.

51 [4]. (Amended) The ink cartridge of claim 57, wherein said lid has a center line, and said engaging recess is disposed [at a position which deviates from] on the center line of said lid.

52 [5]. (Amended) The ink cartridge of claim 57, wherein said engaging recess has capacity sufficient to receive gas escaped from the ink cartridge when the ink cartridge is packed in a package under a degassed condition.

53 [6]. (Amended) The ink cartridge of claim 57, wherein the engaging recess engages with [a rod] said projecting member from a carriage of the printer onto which the ink cartridge is mounted.

54 [7]. (Amended) The ink cartridge of claim 57, wherein said engaging recess is completely covered by [a removable seal] said film.

55 [8]. (Amended) The ink cartridge of claim [57] 53, wherein said cartridge [holder] includes a lever, said [engaging recess engaging with] projecting member includes a projection formed on [a] said lever [of a cartridge holder of the ink jet printer].

56 [9]. (Amended) The ink cartridge of claim 57, wherein said engaging recess comprising a first section for receiving the [projection of the lever] projecting member of the printer and a second section [for receiving the member of the printer, and said first section and said second section being] formed continuously with the first section.

57. (Amended) An ink cartridge for an ink jet printer having a cartridge holder, comprising:

a housing having a wall and an opening,

a lid covering said opening of said housing;

an ink supply hole formed on said wall of said housing; and

at least one engaging recess formed on said [wall of said housing] lid, said engaging recess being engageable with a projecting member of the printer when the ink cartridge is correctly mounted on the printer and said engaging recess being at least partially covered by a film which can be removed from the ink cartridge to create an air communication port to the atmosphere.

58.(Amended) An ink jet printer, comprising:

a carriage[, said carriage having a member extending therefrom];

a print head including a plurality of nozzles through which ink is ejected mounted on said carriage;

an ink cartridge, said ink cartridge being mounted on the carriage and, said ink cartridge comprising:

a housing having walls and an opening, a top wall of said housing being constituted by a lid covering said opening of said housing;

at least one ink chamber defined by said housing and said lid;

an ink supply port formed on one of the walls of said housing;

at least one recess forming a space in an outer surface of said lid[ and engageable with said member when the ink cartridge is mounted on the carriage], the pressure within said

space being lower than the atmospheric pressure when the ink cartridge is packed, and wherein the recess is isolated from an interior of the ink chamber and exposed to an exterior of the ink chamber.

59. (Twice Amended) The printer of claim 58, further comprising a seal member, wherein said [wall has an outer surface, the] recess [being ] is partially covered by said seal member adhered onto the outer surface of [the wall of said housing] said lid.

60. (Twice Amended) The printer of claim 58, further comprising a mounting lever mounted on the carriage wherein [the member of the carriage comprises a rod] a projection projecting from the mounting lever is engageable with said recess.

62.(Amended) An ink jet printer, comprising:

a carriage, said carriage having a projecting member and an ink supply needle extending therefrom;

a print head including a plurality of nozzles through which ink is ejected mounted on said carriage;

an ink cartridge, said ink cartridge being mounted on the carriage and, said ink cartridge comprising:

a housing having at least one wall;

an ink supply port formed on the wall of said housing; and



at least one engaging recess [hole means] formed in the wall of said housing adjacent to said ink supply port, said engaging [hole means] recess being engageable with the projecting member of the printer when the ink cartridge is mounted on the carriage, wherein the engaging recess and the projecting member of the printer align the ink supply port with the ink supply needle prior to insertion of the ink needle into the ink supply port.

63. (Twice Amended) The printer of claim 62, wherein [said engaging hole means engages with a projection formed on the ink jet printer,] the height of the [projection being] projecting member is greater than that of the ink supply needle of the ink jet printer.

64. (Twice Amended) The printer of claim 63, further comprising an abutment member which abuts against the [projection] projecting member of the ink jet printer when the ink cartridge is mounted in the improperly.

65. (Twice Amended) The printer of claim [63] 64, wherein said abutment member includes a part of said wall of said housing where said engaging recess is not ???? [the projection extends from a lever of a cartridge holder of the ink jet printer].

67. (Twice Amended) The printer of claim [66] 62, wherein said ink supply port protrudes from [the bottom] said wall of said housing.

68. (Twice Amended) The printer of claim 62, wherein said engaging [hole means] recess comprises an odd number of engaging [holes] recesses.

69. (Twice Amended) The printer of claim 62, wherein said engaging [hole means] recess comprises an even number of engaging [holes] recesses.

70. (Twice Amended) The printer of claim 68, wherein the position of said engaging [holes] recesses are asymmetrical with respect to a center transversal line of said ink supply port.

71. (Twice Amended) The printer of claim 68, wherein at least two of the engaging [holes] recesses are disposed along a line.

72. (Twice Amended) The printer of claim 69, wherein at least two of the engaging [holes] recesses are disposed along a line.

73. (Twice Amended) The printer of claim 62, wherein said engaging [hole means] recess is rectangular in cross section.

83. (Amended) The ink cartridge of claim 42, wherein the engaging [holes] recesses along the same line are formed by separate [holes] recesses.

84. (Amended) The ink cartridge of claim 43, wherein the engaging [holes] recesses along the same line are formed by separate [holes] recesses.

85. (Amended) The ink cartridge of claim 68, wherein the engaging [holes] recesses along the same line are formed by separate [holes] recesses.

86. (Amended) The ink cartridge of claim 69, wherein the engaging [holes] recesses along the same line are formed by separate [holes] recesses.

87.(Amended) An ink jet printer, comprising:

a carriage, said carriage having a projecting member extending therefrom;

a print head including a plurality of nozzles through which ink is ejected mounted on said carriage;

an ink cartridge, said ink cartridge being mounted on the carriage and, said ink cartridge comprising:

a housing having a wall and an opening,

a lid covering said opening of said housing;

an ink supply hole formed on said wall of said housing; and

at least one engaging recess formed on said [wall of said housing] lid, said engaging recess being engageable with a projecting member of the printer when the ink cartridge is correctly mounted on the printer and said engaging recess being at least partially covered by a film which can be removed from the ink cartridge to create an air communication port to the atmosphere.

88. (Amended) The ink cartridge of claim 87, [further comprising a seal member, wherein said wall has an outer surface, the recess being covered by said seal member adhered onto the outer surface of the wall of said housing] wherein said engaging recess is engageable after said film is removed.

89. (Amended) The ink cartridge of claim 87, further comprising a mounting lever mounted on the carriage wherein the member of the carriage comprises a [rod] projection projecting from the mounting lever.